The Beagle, Occasional Papers of the Northern Territory Museum of Arts and Sciences, 1986, 3(1): 191-194

A NEW SPECIES OF *TIMEA* GRAY (PORIFERA: HADROMERIDA) FROM NORTHERN AUSTRALIA

JOHN N.A. HOOPER
Northern Territory Museum of Arts and Sciences,
GPO Box 4646, Darwin, NT 5794, Australia.

ABSTRACT

A new species of *Timea* Gray (Timeidae: Hadromerida: Porifera), *T. lowchoyi* sp. nov., is described from East Point Fish Reserve, Darwin, Northern Australia.

KEYWORDS: taxonomy, new species, Porifera, Hadromerida, Timeidae, *Timea*, north Australia.

INTRODUCTION

Timea Gray contains numerous species, all of which have few morphological characters of known systematic importance. Consequently, differentiation of species relies largely upon the form and spination of the euaster microscleres, which are reportedly fairly characteristic and consistent within many nominal species (e.g. Bergquist 1965:186). Additional characters may be found for taxa described from live specimens, particularly colour and surface ornamentation, and these too are apparently characteristic and stable (e.g. Bergquist 1965, 1968; Pulitzer-Finali 1977). These characters are certainly useful for field studies, but they are of little importance in the study of preserved museum specimens, which unfortunately comprise the majority of nominal taxa. As a consequence, a specific revision of *Timea* would be difficult, and at the present time authors are required to erect new species on the basis of megasclere size and microsclere form alone (e.g. Pulitzer-Finali 1983).

Methods of preparation and examination are described elsewhere (Hooper 1984a, 1984b).

SYSTEMATICS

Order Hadromerida Topsent
Family Timedae Topsent
Genus *Timea* Gray

Timea Gray, 1867:544 (type species *Hymedesmia stellata* Bowerbank, 1866:150, 1874:71, Pl.28, Figs 5-8, 1882:67, by original designation and monotypy).

Diagnosis. Thinly incrusting sponges with choanosomal tylostyles standing erect on substrate and protruding through ectosome. Ectosome and choanosome packed with euasters of variable form, ranging from oxyasters to spherasters and calthrops-like asters. Megascleres in bundles or singly, without fibre component or definite tracts.

Timea lowchoyi sp.nov.
(Figs 1-4, Pl. 1F)

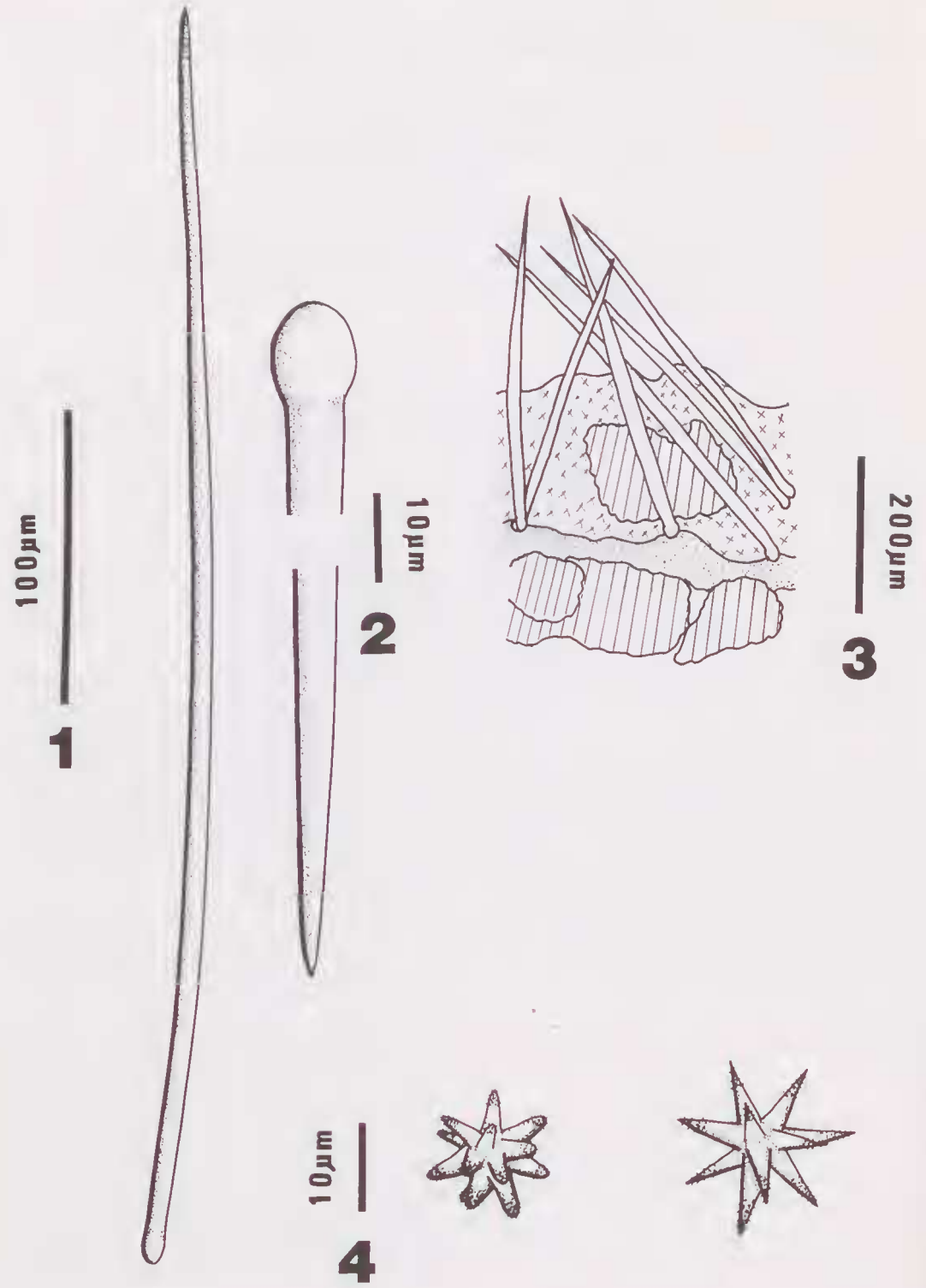
Type material. HOLOTYPE - Northern Territory Museum (NTM) Z2135, East Point Fish Reserve, Darwin, NT, 12°25.0′S 130°49.1′E, 27 September 1984, intertidal, Coll. J.N.A. Hooper.

Diagnosis. Thin, dark red-brown incrustation with hispid ectosome and radially grooved canals draining into small oscula. Megascleres straight, sharply pointed tylostyles, erect on substrate, 332-547 x 4-10 μm. Microscleres oxyasters and strongylasters with microspined and uniform rays, abundant in ectosome and choanosome, 12-28 μm maximum diameter.

Ecology. Found on an intertidal laterite rock and coral reef close to the city of Darwin. Located under a loose dead faviid coral head, incrusting near compound ascidians, coralline algae and sponges. Rare.

Description. Thinly incrusting, 1-3 mm thick, with dimensions 70 x 60 mm. Colour in life dark red-brown (Munsell 10R 5/12); colour in ethanol light grey (10R 8/12) (Pl. 1F). Texture is compressible and elastic. Surface hispid and sculptured by long, deep, meandering and bifurcating drainage canals and grooves, which radiate from oscula. Oscula slightly raised in thicker areas of sponge, or flush with the surface in thinner regions, and measure 0.8-1.5 mm in diameter.

Ectosome opaque, heavily pigmented in life in thicker sections, or translucent in the thin sections of the incrustation.



Figs 1-4. *Timea lowchoyi* holotype: **1**, tylostyles; **2**, extremities of megaseleres; **3**, euasters; **4**, section of peripheral skeleton (hatched areas are coral inclusions; stippled area is basal spongin layer).

Choanosomal megascleres stand erect on substrate, occuring singly or in groups of 2 or 3, and extend up to 100 μm out of ectosome. Tylote bases of megascleres are embedded in non-fibre spongin which coats substrate (13-20 μm thick).

Choanosomal architecture a mass of euaster microscleres and vertically disposed megascleres. Coral debris and sand particles incorporated into choanosome in places. Mesohyl matrix mostly obscured by euasters, but contains abundant light spongin. Choanocyte chambers not observed.

Megascleres: straight, long, smooth, tylostyles, with fusiform apex and prominently swollen bases. (N=25) Length 432.4 μm (mean) (range 332-547 μm), maximum width 7.4 μm (4-10 μm).

Microscleres: euasters (oxyasters and strongylasters) with microspined and uniform rays, and moderately large centrum. (N=25) maximum mean diameter 19.52 μm (12-28 μm).

Remarks. *T. lowchoyi* is comparable with *T. aurantiaca* Bergquist, 1968, in colour (the latter being bright orange to red), texture (elastic), thickness (0.8-0.9 mm), habit (thinly incrusting), and surface sculpturing (radial grooves). Tylostyles of *T. aurantiaca* frequently bear subterminal swellings, and are sometimes asymmetrical and with roughened bases; those of the present species are invariably smooth, symmetrical and have terminal bases. Megascleres are of similar size (193-677 x 2.3-6 μm; 332-547 x 4-10 μm, for *T. aurantiaca* and *T. lowchoyi* respectively). Microscleres of *T. aurantiaca* are smaller, and are recorded as tylo- to strongylo-spherasters, and normal spherasters with oxeote rays (4.6-22.2 μm; cf. 12-28 μm, respectively). Bergquist's (1968) figure (Plate 11e) suggests that the rays of euasters are microspined (indicated by the stippling in the figure), although not explicitly stated in the text. However, her comparison of the affinities between *T. aurantiaca* and *T. spherastraea* Burton, 1959, which does not have microspined euasters, would indicate that her species is similar in that respect.

Differences in the size of euasters, the (possible) absence of microspination of euaster rays, the position of tylote swellings on megascleres, and their geographical and climatic separation may differentiate *T. lowchoyi* and *T. aurantiaca*. Those differences may be tenuous; intraspecific variability for *Timea* has not been substantially documented (cf. *T. hazelli* Topsent, 1900).

Timea tetractis Hentschel (1912) from the Arafura Sea may be distinguished from the present species in having two distinct forms of asters (strongylasters and a heavily spined quadriradiate aster, "chelotropartige aster" of Hentschel).

Etymology. The specific name is given in respect to the late W.R. Low Choy, Lecturer in Marine Biology at the Darwin Institute of Technology, who was the main instigator in the declaration of East Point Reef as a Marine Fish Reserve (April 1984).

REFERENCES

Bergquist, P.R. 1965 The sponges of Micronesia, Part 1, The Palau Archipelago. *Pacific Science* **19**(2): 123-204.

——— 1968 The Marine Fauna of New Zealand: Porifera, Demospongiae, Part 1 (Tetractinomorpha and Lithistida). *Bulletin of the New Zealand Department of Scientific and Industrial Research. Memoirs of the New Zealand Oceanographic Institute* **37**(188): 1-106.

Bowerbank, J.S 1866 *A Monograph of the British Spongiadae*. Volume 2. Ray Society: London.

——— 1874 *A Monograph of the British Spongiadae*. Volume 3. Ray Society: London.

——— 1882 *A Monograph of the British Spongiadae*. Volume 4. Ray Society: London.

Burton, M. 1959 Sponges. *Scientific Report on the John Murray Expedition* **10**(5): 151-281.

Gray, J.E. 1867 Notes on the arrangement of sponges, with description of some new genera. *Proceedings of the Zoological Society of London* **1867**: 492-558.

Hentschel, E. 1912 Kiesel-und Hornschwämme de Aru und Kei-Inseln. *Abhandlungen Senckenbergische Naturforschende Gesellschaft* **34**:295-448.

Hooper, J.N.A. 1984a A new genus and two new species of Haploscleriid sponges (Porifera: Demospongiae) from the Timor Sea, Northwest Australia. *Proceedings of the Royal Society of Victoria* **96**(2):55-60.

——— 1984b *Sigmaxinella soelae* and *Desmacella ithystela*, two new desmacellid sponges (Porifera, Axinellida, Desmacellidae) from the Northwest Shelf of Western Australia, with a revision of the Family Desmacellidae. *Northern Territory Museum of Arts and Sciences, Monograph Series* **2**:1-58.

Pulitzer-Finali, G. 1977 Report on a collection of sponges from the Bay of Naples. III. Hadromerida, Axinellida, Poecilosclerida. *Bollettino dei Musei e degli Istituti Biologici dell' Universita di Genova* **45**: 7-89.

——— 1983 A collection of Mediterranean Demospongiae (Porifera) with, in appendix, a list of the Demospongiae hitherto recorded from the Mediterranean Sea. *Annali del Museo Civico di Storia Naturale di Genova* **84**:445-621.

Topsent, E. 1900 Étude monographique des spongiaires de France. III. Monaxonida (Hadromerida). *Archives de Zoologie Expérimentale et Generale* **8**:1-331.

Accepted 17 September 1986